

What is claimed is:

1. An apparatus, comprising:

an array module having:

a housing having a rear plate and opposing side walls defining a module chamber,

5 a plurality of mounting locations on said side walls of said housing and in said module chamber,

a plurality of electronic units having mounting features along opposite sides thereof, said mounting features being assembled to respective ones of said mounting locations so that said housing supports said electronic units in said module chamber, each of said electronic units having at least one first connector,

10 a plurality of second connectors in said module chamber, each said first connector on said electronic units mating with a respective second connector, and

15 at least one third connector on said housing connected to said plurality of second connectors to provide electrical connection to each of said plurality of electronic units;

an installation frame having:

20 a rear wall and opposing side walls defining an installation chamber, a plurality of resilient mounts fastened to external surfaces of said installation frame, each said mount being arranged to be fastened to a support platform to isolate said installation frame from mechanical shock or vibration in said support platform,

25 at least one fourth connector on said installation frame, said at least one fourth connector mating with said at least one third connector, and at least one external connector connected to said at least one fourth connector for providing electrical connection to said at least one fourth connector; and

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heat transfer means for transferring thermal energy between said electronic units and a region exterior to said installation frame.

2. The apparatus of claim 1 wherein said first, second, third and fourth connectors are blind-mate connectors.

3. The apparatus of claim 1 wherein said plurality of mounting locations comprise a plurality of mounting slots.

4. The apparatus of claim 3 wherein said mounting features comprise a plurality of mounting rails.

5. The apparatus of claim 1 further comprising means for mounting said array housing in said installation frame.

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6. The apparatus of claim 5 wherein said mounting means comprises a guide mount between said array module and said installation frame, said guide mount including first rails on the exterior side of said side walls of said array housing and second rails on the interior side of said side walls of said installation frame, said first and second rails nesting to support said array housing in said installation frame.

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7. The apparatus of claim 6 wherein said nested first and second rails extend orthogonal to said rear wall of said installation frame and said rear plate of said array housing and form a slot along the length of said rails, the apparatus further including

a cam lock in the slot formed by said nested rails for rigidly fastening said array housing to said installation frame.

8. The apparatus of claim 1 wherein said heat transfer means comprises ventilation units through said rear wall of said installation frame, and a plurality of heat transfer fins on the external sides of said side walls of said array module housing.

9. The apparatus of claim 8 further comprising a guide mount between said array module and said installation frame, said guide mount including first rails on the exterior side of said side walls of said array housing and second rails on the interior side of said side walls of said installation frame, said first and second rails nesting to support said array housing in said installation frame.

10. The apparatus of claim 9 wherein said nested first and second rails extend orthogonal to said rear wall of said installation frame and said rear plate of said array housing and form a slot along the length of said rails, the apparatus further including  
a cam lock in the slot formed by said nested rails for rigidly fastening said array housing to said installation frame.

11. The apparatus of claim 1 wherein said heat transfer means comprises:  
a plurality of resilient thermal conductors each having a first end  
permanently mounted to respective external sides of said side walls of said installation frame, and  
at least two thermal rails arranged to be mounted to an external heat sink, each said thermal rail being permanently mounted to second ends of respective resilient thermal conductors.

12. The apparatus of claim 11 further comprising a guide mount between said array module and said installation frame, said guide mount including first rails on the exterior side of said side walls of said array housing and second rails on the interior side of said side walls of said installation frame, the first and second rails nesting to support said array housing in said installation frame.

13. The apparatus of claim 12 wherein said nested first and second rails extend orthogonal to said rear wall of said installation frame and said rear plate of said array housing and form a slot along the length of said rails, the apparatus further comprising

5 a cam lock in the slot formed by said nested rails for rigidly fastening said array housing to said installation frame.

14. The apparatus of claim 1 wherein said storage array module includes top, bottom and front walls enclosing said module chamber, and a plurality of resilient bumpers mounted to said top and bottom walls and extending rearwardly of said rear plate and forward of said front wall.

15. The apparatus of claim 1 wherein each of said plurality of electronic units is housed in an enclosure having a fifth connector on an end thereof, each said enclosure comprising:

a top cover;

5 a bottom cover arranged to mate with said top cover to form a hermetically sealed enclosure chamber;

a sixth connector on one of said top and bottom covers arranged to mate with said fifth connector;

at least two side rails for rigidly fastening to said electronic unit;

10 a resilient support connected to at least said two side rails and to at least one of said top and bottom covers for resiliently supporting said electronic unit in said enclosure chamber, said resilient support being formed of a material having a high resistance to thermal conduction;

at least two thermal rails;

15 a plurality of resilient thermal conductors each having a first end permanently mounted to a respective one of said thermal rails and a second end permanently mounted to one of the group consisting of said side rails, said top cover and said bottom cover; and

a fastener removably mounting said thermal rails to another of the group consisting of said side rails, said top cover and said bottom cover so that said thermal rails and resilient thermal conductors provide conduction of thermal energy between said side rails and one of said covers.

16. The apparatus of claim 15 further comprising at least two mounting plates mounted to one of said top and bottom cover, said thermal conductors having their second ends

permanently mounted to a respective side rail, and wherein said fastener mounts said thermal rails to respective mounting plates.

17. The apparatus of claim 16 wherein said resilient support comprises resilient bumpers mounted between said respective side rails and respective mounting plates.

18. The apparatus of claim 15 wherein said resilient support comprises a molded resilient isolator between said electronic unit and at least one of said top and bottom covers to support said electronic unit in said enclosure.

19. The apparatus of claim 15 further comprising a circuit board within said enclosure chamber, and a flexible cable connector connected to said circuit board for connecting to said electronic unit.

20. An enclosure for an electronic unit, the electronic unit having a first connector on an end thereof, the enclosure comprising:

a top cover;

a bottom cover arranged to mate with said top cover to form a hermetically sealed enclosure;

a second connector on one of said top and bottom covers arranged to mate with said first connector;

at least two side rails rigidly fastened to the electronic unit;

a resilient support connected to said at least two side rails and to at least one of said top and bottom covers for resiliently supporting the electronic unit in said enclosure, said resilient support being formed of a material having a high resistance to thermal conduction;

at least two thermal rails;

a plurality of resilient thermal conductors each having a first end permanently mounted to a respective one of said at least two thermal rails and a second end permanently mounted to one of the group consisting of said side rails, said top cover and said bottom cover;

a fastener removably mounting said thermal rails to another of the group consisting of said side rails, said top cover and said bottom cover so that said thermal rails and resilient thermal conductors provide conduction of thermal energy between said side rails and one of said covers.

21. The enclosure of claim 20 further comprising at least two mounting plates mounted to one of said top and bottom cover, said thermal conductors having their second ends permanently mounted to a respective one of said at least two side rails, and wherein said fastener mounts said thermal rails to respective mounting plates.

22. The enclosure of claim 21 wherein said resilient support comprises resilient bumpers mounted between said respective side rails and respective mounting plates.

23. The enclosure of claim 20 wherein said resilient support comprises a molded resilient isolator between the electronic unit and at least one of said top and bottom covers to support the electronic unit in said enclosure.

24. The enclosure of claim 20 further comprising a circuit board within said enclosure, and a flexible cable connector connected to said circuit board for connecting to the electronic unit.

25. The enclosure of claim 20 wherein said second connector is a blind-mate connector.

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